IAP5 Rec'd PCT/PTO 31 JUL 2006

【Sequence Listing】

<110>   Lifenza Co., Ltd.

<120>   PROTEIN WITH ACTIVITY OF HYDROLYZING DEXTRAN, STARCH, MUTAN,
5   INULIN AND LEVANN, GENE ENCODING THE SAME, CELL EXPRESSING THE
         SAME, AND PRODUCTION METHOD THEREOF

<150>   KR2004-0006185
<151>   2004-01-30
10

<160>   4

<170>   KopatentIn 1.71

15 <210>   1
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    <212>   PRT
    <213>   Artificial Sequence

20 <220>
    <223>   S. cerevisiae/pYES2-LSD1

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25 Met Thr Leu Ile Tyr Val Pro Ser Ile Phe Thr Met Val Pro Ser Ile
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    Thr Arg Ile Val Leu Val Asn Ile Leu Leu Ala Thr Leu Val Leu Gly
                    20   25   30
30
    Ala Ala Val Leu Pro Arg Asp Asn Arg Thr Val Cys Gly Ser Gln Leu
                    35   40   45

    Cys Thr Trp Trp His Asp Ser Gly Glu Ile Asn Thr Gly Thr Pro Val
35   50   55   60

    Gln Ala Gly Asn Val Arg Gln Ser Arg Lys Tyr Ser Val His Val Ser

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                65                  70                  75                  80

        Leu Ala Asp Arg Asn Gln Phe Tyr Asp Ser Phe Val Tyr Glu Ser Ile
                        85                  90                  95
 5

        Pro Arg Asn Gly Asn Gly Arg Ile Tyr Ser Pro Thr Asp Pro Pro Asn
                    100                 105                 110

        Ser Asn Thr Leu Asn Ser Ser Ile Asp Asp Gly Ile Ser Ile Glu Pro
10              115                 120                 125

        Ser Leu Gly Ile Asn Met Ala Trp Ser Gln Phe Glu Tyr Arg Arg Asp
                130                 135                 140

15      Val Asp Ile Lys Ile Thr Thr Ile Asp Gly Ser Ile Leu Asp Gly Pro
        145                 150                 155                 160

        Leu Asp Ile Val Ile Arg Pro Thr Ser Val Lys Tyr Ser Val Lys Arg
                        165                 170                 175
20
        Cys Val Gly Gly Ile Ile Ile Arg Val Pro Tyr Asp Pro Asn Gly Arg
                    180                 185                 190

        Lys Phe Ser Val Glu Leu Lys Ser Asp Leu Tyr Ser Tyr Leu Ser Asp
25              195                 200                 205

        Gly Ser Gln Tyr Val Thr Ser Gly Gly Ser Val Val Gly Val Glu Pro
                210                 215                 220

30      Lys Asn Ala Leu Val Ile Phe Ala Ser Pro Phe Leu Pro Arg Asp Met
        225                 230                 235                 240

        Val Pro His Met Thr Pro His Asp Thr Gln Thr Met Lys Pro Gly Pro
                    245                 250                 255
35
        Ile Asn Asn Gly Asp Trp Gly Ser Lys Pro Ile Leu Tyr Phe Pro Pro
                    260                 265                 270
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Gly Val Tyr Trp Met Asn Glu Asp Thr Ser Gly Asn Pro Gly Lys Leu
        275   280   285

5   Gly Ser Asn His Met Arg Leu Asp Pro Asn Thr Tyr Trp Val His Leu
        290   295   300

    Ala Pro Gly Ala Tyr Val Lys Gly Ala Ile Glu Tyr Phe Thr Lys Gln
    305   310   315   320

10

    Asn Phe Tyr Ala Thr Gly His Gly Val Leu Ser Gly Glu Asn Tyr Val
                325   330   335

    Tyr Gln Ala Asn Ala Ala Asp Asn Tyr Tyr Ala Val Lys Ser Asp Gly
15   340   345   350

    Thr Ser Leu Arg Met Trp Trp His Asn Asn Leu Gly Gly Gly Gln Thr
            355   360   365

20 Trp Phe Cys Met Gly Pro Thr Ile Asn Ala Pro Pro Phe Asn Thr Met
        370   375   380

    Asp Phe Asn Gly Asn Ser Asn Ile Ser Ser Arg Ile Ser Asp Tyr Lys
    385   390   395   400

25

    Gln Val Gly Ala Tyr Phe Phe Gln Thr Asp Gly Pro Glu Ile Tyr Glu
                405   410   415

    Asp Ser Val Val His Asp Val Phe Trp His Val Asn Asp Asp Ala Ile
30   420   425   430

    Lys Thr Tyr Tyr Ser Gly Ala Ser Ile Ser Arg Ala Thr Ile Trp Lys
            435   440   445

35 Cys His Asn Asp Pro Ile Ile Gln Met Gly Trp Thr Ser Arg Asn Leu
        450   455   460

Thr Gly Ile Ser Ile Asp Asn Leu His Val Ile His Thr Arg Tyr Phe
465   470   475   480

Lys Ser Glu Thr Val Val Pro Ser Ala Ile Ile Gly Ala Ser Pro Phe
            485   490   495

Tyr Ala Ser Gly Met Thr Val Asp Pro Ser Glu Ser Ile Ser Met Thr
            500   505   510

Ile Ser Asn Val Val Cys Glu Gly Leu Cys Pro Ser Leu Phe Arg Ile
            515   520   525

Thr Pro Leu Gln Ser Tyr Asn Asn Leu Val Val Lys Asn Val Ala Phe
        530   535   540

Pro Asp Gly Leu Gln Thr Asn Pro Ile Gly Ile Gly Glu Ser Ile Ile
545   550   555   560

Pro Ala Ala Ser Gly Cys Thr Met Asp Leu Glu Ile Thr Asn Trp Thr
            565   570   575

Val Lys Gly Gln Lys Val Thr Met Gln Asn Phe Gln Ser Gly Ser Leu
            580   585   590

Gly Gln Phe Asp Ile Asp Gly Ser Tyr Trp Gly Gln Trp Ser Ile Asn
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<223>   S. cerevisiae/pYLSD1

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cgacgttggt tttgggagct gcagtccttc cacgagacaa cagaactgtt tgcgggagtc   180

aactctgcac atggtggcac gactccggcg agataaacac cggtactcct gtacaggcag   240

gaaacgttcg acaatcccga aagtactctg tccatgtgag cctggcagac cgtaaccaat   300

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ccaccgaccc acctaacagc aatacattga atagtagcat tgacgacggt atatcaatcg   420

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cgacttctgt taagtactca gtcaaaagat gtgtgggtgg tatcattatt agagtccctt   600

atgatcccaa tggtcgaaaa ttctctgttg agttaaagag tgacctttac agttacctct   660

ccgacggttc gcaatatgtg acctctggag ggagcgtggt tggtgtggag ccaaaaaatg   720

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acgacaccca gacaatgaag ccgggcccaa tcaataatgg ggactggggt tcaaagccta   840

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        ccgtcaagag tgatggcaca agcttgagaa tgtggtggca caacaacctt ggaggcggtc        1140

    5   aaacatggtt ttgcatgggg cccaccatta atgcaccgcc gtttaatacg atggacttca        1200

        acggaaactc taatatttcc agccggatta gtgactataa gcaggttggc gcttattttt        1260

        tccaaacaga cggaccggag atctacgagg acagtgttgt ccatgacgtc ttctggcatg        1320

   10   ttaatgatga tgccatcaag acatattatt ccggagcttc aatttcacga gcaaccatct        1380

        ggaagtgtca caatgacccg atcatacaga tgggctggac gtcacgaaat ctcaccggaa        1440

   15   tcagcattga taacctgcac gtcatccaca cgagatattt caaatctgaa acagtggttc        1500

        cttcagcaat cattggagcg tctccattct acgcaagtgg aatgactgtt gatcccagcg        1560

        agtccatcag catgaccatc tctaacgtgg tgtgtgaggg tctatgcccc tcactgttcc        1620

   20   gtatcactcc gcttcagagc tacaacaacc ttgttgtcaa gaacgtggcc tttcccgatg        1680

        gactgcagac aaatccaatc ggaataggag agagcattat accagcagct tccggctgta        1740

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        ttcagtccgg gtcacttggc cagttcgata tcgatggttc atactggggt caatggtcca        1860

        taaactaaag ctattcccat tcacctgagt attttcgtgg gttcaatgag ttcttgttac        1920

   30   tgatggggcc cttgctagtg gtaaaagtag agggacttgt cctcgccggg cgccaaggaa        1980

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<223> L. starkeyi DX-F primer(sense)

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15 <211> 23
<212> DNA
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20 <223> L. starkeyi DX-R primer(antisense)

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25